

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number  
**WO 2005/015771 A1**

(51) International Patent Classification<sup>7</sup>:  
H01Q 3/26

H04B 7/04,

(74) Common Representative: SIEMENS AKTIENGESELLSCHAFT; Postfach 22 16 34, 80506 München (DE).

(21) International Application Number:

PCT/EP2004/051185

(22) International Filing Date: 21 June 2004 (21.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03017292.8

30 July 2003 (30.07.2003) EP

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*):  
SIEMENS AKTIENGESELLSCHAFT [DE/DE];  
Wittelsbacherplatz 2, 80333 München (DE).

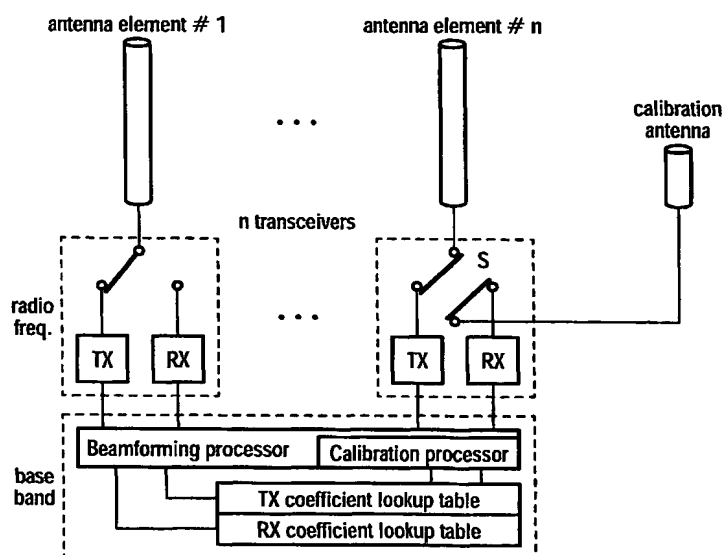
(72) Inventor; and

(75) Inventor/Applicant (*for US only*): SCHIEBLICH,  
Christian [DE/DE]; Ringstr. 100, 89081 Ulm (DE).

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ANTENNAS ARRAY CALIBRATION ARRANGEMENT AND METHOD



(57) Abstract: According to one aspect of the invention, an arrangement for controlling transmission and/or reception of signals in a radio communications system is disclosed, comprising transceiving means (TX,RX) each connected to one element of an array of antenna elements (#1 ... #n), wherein at least one of said transceiving means (TX,RX) is additionally connected to a calibration antenna for transmitting and/or receiving test signals to and/or from said antenna elements (#1 ... #n), at least one calibration processor for determining variations of said test signals in said transceiving means (TX,RX), and a beamforming processor for taking into account the determined variations for beamforming and/or determination of direction of arrival of respectively transmitted and received radio signals by said antenna elements (#1 ... #n).



**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*